

Rand Crafts - ICS Cooling Tower Replacement

From: Rand Crafts
To: Lamar Stephenson; Steve Boardman; Travis Smith
Date: Friday, July 09, 2010 10:23 AM
Subject: ICS Cooling Tower Replacement
CC: Blaine Ipson

Thanks for the info so far. But using default EPA tables, (18,500 TDS, 0.02% drift factor), emissions calculate out to 44 tons per year for particulate matter under 10 micron - which is unfathomable and definitely un-permittable.

My assumptions:

(2) 1360gpm raw water pumps per pole
(4) 53,100 cfm towers per pole, with double eliminators (same as previously),
Minimum two tower operation, maximum four tower operation,
minimum one pump operation, maximum two pump operation.

What I need,

- Actual design drift factor for double mist eliminators,
- actual raw water quality data from GE Betz,
- discharge height of the towers,
- new line diagram of process (P&ID) showing pumps and towers in the cooling cycles,
- and maybe an in-person discussion of the line diagram and general operational details.

I know that TDS will be an order of magnitude less than EPA's default value, as well the drift factor. With the correct values, I would expect tower emission to be under a half ton per year, which is more realistic.

Staff has determined that they would like a permit by October - so I need this Monday.

Thanks.

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From: David Steele
To: Rand Crafts
Date: Tuesday, July 13, 2010 8:00 AM
Subject: Cooling Towers at ICS
Attachments: 0415 Converter Station.pdf

CC: Blaine Ipson; Scott Robison; Travis Smith
Rand,

Travis asked me to help with your request for information about the Cooling Towers.

Design Drift Factor

The design drift factor was not found in any literature available from BAC. I was able to get the information in a phone call from Chris Norwood of BAC. The flow through each tower is 445 GPM, with a drift loss of .002.

Water Quality Data

See Enclosed report: 0415 Converter Station.pdf

Discharge Height Of Towers

ABB construction drawing J29-MA13 shows assembled height of new CT plus Discharge Hood to be 17' 1 5/8"
Adding the I-beam support (6 7/8") and foundation height above grade the total is approximately 20'

New P&ID showing pumps and towers in the cooling cycles

I have not seen a new P&ID from ABB. You indicated you are updating an older drawing to show the added towers.

RW Circulation pumps

Simultaneous pump operation is possible, but normal operating practice does not allow for that, except briefly while transferring from one pump to the other. There are no lockouts to prevent simultaneous operation.

Blow Downs

Currently, blow downs are initiated in make-up cycles. The cycles occur when silica content is at 60-65 ppm. The blow down lasts 15 minutes. Flow rate is 3 liters per second and returns to the on-site reservoir, rather than back into the system. When the system is updated, blow downs will be initiated on conductivity.

I hope this helps, let me know if you need additional information of any clarification,

Dave